

AMENDMENTS TO THE SPECIFICATION:

IN THE SPECIFICATION:

Please replace the paragraph at page 5, line 14 to page 6, line 3 with the following amended paragraph:

(3) A method for producing the aqueous urethane polyol in accordance with (1), comprising reacting:

(a) a polyisocyanate derived from at least an aliphatic and/or an alicyclic diisocyanate, having:

an average number of ~~isocyanate~~ isocyanate groups of 3 to 20;

a concentration of isocyanate group of 3 to 25% by weight;

a concentration of diisocyanate monomer of 3% by weight or less; and

a number average molecular weight of 600 to 19,000;

(b) a polyol; and

(c) a compound comprising an active hydrogen group and a hydrophilic group in a single molecule;

at an equivalent ratio of (hydroxyl group of (b) + active hydrogen group of (c)) / (~~isocyanate~~ isocyanate group of (a)) > 1.

Please replace the paragraph at page 6, lines 7-9 with the following amended paragraph:

(5) The production method in accordance with (3), wherein the

average number of ~~isocyanate~~ isocyanate groups of the polyisocyanate is 6 to 20.

Please replace the paragraph at page 8, line 24 to page 9, line 16 with the following amended paragraph:

Methods for producing the aqueous urethane polyol of the present invention will be described in detail hereinbelow. The urethane polyol of the present invention can be obtained by reacting:

(a) a polyisocyanate derived from at least aliphatic and/or alicyclic diisocyanate, satisfying the following conditions:

1) an average number of ~~isocyanate~~ isocyanate groups: 3 to 20;

2) a concentration of isocyanate group: 3 to 25% by weight;

3) a concentration of a diisocyanate monomer: 3% by weight or less; and

4) a number average molecular weight: 600 to 19,000;

(b) a polyol; and

(c) a compound having an active hydrogen group and a hydrophilic group in a single molecule;

in an equivalent ratio of (hydroxyl group of (b) + active hydrogen group of (c)) / (~~isocyanate~~ isocyanate group of (a)) > 1.

Please replace the paragraph starting at page 10, line 8 with the following amended paragraph:

The above-described diisocyanate monomers are converted to ~~polyisocyanates~~ polyisocyanates by various oligomerization methods to increase their molecular weight. The thus obtained polyisocyanates have one or more of, for example, biuret bond, isocyanurate bond, urethodione bond, urethane bond, allophanate bond and oxadiazinetriane bond, etc.

Please replace the paragraph starting at page 11, line 9 with the following amended paragraph:

Polyester polyols include, for example, polyester polyols obtained by condensation reaction between a single dibasic acid or a mixture of dibasic acids selected from a group consisting of carboxylic acids, such as succinic acid, adipic acid, sebacic acid, dimer acid, maleic anhydride, phthalic anhydride, isophthalic acid and terephthalic acid, and a single polyol or a mixture of polyols selected from the above-described group of the low molecular weight polyols; and polycaprolactones obtained, for example, by the ring opening polymerization of ϵ -caprolactone to the hydroxyl groups of a low molecular weight polyol. These polyester polyols can be modified with aromatic diisocyanate, aliphatic and alicyclic diisocyanates and polyisocyanates obtained from them. In this case, in particular, aliphatic and alicyclic diisocyanates and polyisocyanates obtained from them are preferable from the viewpoint of weatherability and resistance to yellowing. Among these polyesters, the polycaprolactone polyol is preferable and the

polycaprolactone polyol with the number average molecular weight of 250 to 1,000 and the number of hydroxyl groups of 3 to 6 is more preferable, in order to attain the preferable average number of ~~isocynate~~ isocyanate groups as described below. In particular, polyisocyanates with an ~~isocyanurate~~ isocyanurate structure, obtained by an isocyanuration reaction after or simultaneously with a reaction of this polyol and a diisocyanate monomer; and polyisocyanates with an allophanate structure, obtained by an allophanating reaction after or simultaneously with a reaction of this polyol with a diisocyanate monomer are preferable. One example of the above-described polyisocyanate is disclosed in JP-A-6-312969, in which the aqueous urethane polyol of the present invention is neither described nor suggested.

Please replace the paragraph starting at page 13, line 17 with the following amended paragraph:

More preferably the polyol has a number average molecular weight of 250 to 1,000 and the number of hydroxyl groups of 3 to 6, to attain the preferable average number of ~~isocynate~~ isocyanate groups as described below. In particular, polyisocyanates with an isocyanurate structure, obtained by an isocyanurating reaction after or simultaneously with a reaction of this polyol with a diisocyanate monomer; and polyisocyanate with an allophanate structure, obtained by an allophanating reaction after or

simultaneously with a reaction of this polyol with a diisocyanate monomer, are preferable.

Please replace the paragraph starting at page 20, line 3 with the following amended paragraph:

In the preparation of an aqueous urethane polyol of the present invention, equivalent ratio of (hydroxyl group of (b) + active hydrogen group of (c)) / (~~isocyanate~~ isocyanate group of (c)) is above 1. If the ratio is less than 1, a resulting compound comes to have too high viscosity or make it difficult to obtain a hydroxyl group as a functional group.

Please replace the paragraph starting at page 27, line 28 with the following amended paragraph:

The mixing ratio of the above-described urethane polyol and the hardening agent depends on desired performances of a coating film. In the case of (block) polyisocyanate, an equivalent ratio of (hydroxyl group) / (~~isocyanate~~ isocyanate group) is 5/1 to 1/5, preferably 3/1 to 1/3 and more preferably 2/1 to 1/2. Blocked polyisocyanate and melamine type hardening agent may be used in combination.

Please replace the paragraph starting at page 38, line 7 with the following amended paragraph:

Into a four-necked flask equipped with ~~an stirrer~~ a stirrer, a thermometer, a reflux cooling tube, a nitrogen blowing tube and a dropping funnel, 600 parts of HDI was charged under nitrogen atmosphere. The temperature in said reactor was maintained at 60°C under stirring. Then ~~isocyanulation~~ isocyanuration catalyst, tetramethylammonium capriate, was added, and the reaction was terminated by adding phosphoric acid when the yield reached 35%. The reaction mixture was filtered, then unreacted HDI was removed using a thin evaporator. The polyisocyanate thus obtained had a viscosity at 25°C of 2,600 mPa s, a concentration of isocyanate group of 22.2% by weight, a concentration of HDI of 0.2% by weight, a number average molecular weight of 660 and the average number of isocyanate groups of 3.5, was obtained.

Please replace the paragraph starting at page 40, line 3 with the following amended paragraph:

Into a reactor, 348 parts of neopentyl glycol, 150 parts of trimethylolpropane, 128 parts of adipic acid and 435 parts of phthalic anhydride were charged. The mixture was maintained at 220°C for 5 hours, added with 42 parts of trimellitic anhydride, and further maintained at 160°C for 1 hour. The mixture was further added with 88 parts of ~~ε-caprolactone~~ ε-caprolactone and 1

part of dodecylbenzenesulfonic acid, and maintained at 150°C for 3 hours. A polyester resin having a number average molecular weight of 4,800, an acid value of 25 mg KOH/g and a hydroxyl value of 110 mg KOH/g was obtained.

Please replace the paragraph starting at page 40, line 17 with the following amended paragraph:

Using the similar equipment as in Production Example 1, 50 parts of polyisocyanate obtained in Production Example 1 and 162 parts of methyl ethyl ketone were charged and mixed. The mixture was added with 60.5 parts of hydroxypivalic acid neutralized with triethylamine, then maintained at 70°C for 1 hour. The mixture was further added with 465 parts of 1,3-butanediol, and maintained at 70°C for further 1 hour. After that, it was confirmed that an absorption peak corresponding to an ~~isocyanate~~ isocyanate group has disappeared by an IR spectrum measurement of the reaction mixture. An equivalent ratio of (hydroxyl group of hydroxypivalic acid + hydroxyl group of 1,3-butanediol) / (isocyanate group of polyisocyanate) used in this reaction was 2.7.